

=> d his

(FILE 'HOME' ENTERED AT 15:19:33 ON 14 JAN 2005)

FILE 'LREGISTRY' ENTERED AT 15:21:49 ON 14 JAN 2005

L1 STR 544715-99-3

FILE 'REGISTRY' ENTERED AT 15:27:46 ON 14 JAN 2005

L2 0 S L1 SAM

L3 4 S L1 FUL

FILE 'LREGISTRY' ENTERED AT 15:28:47 ON 14 JAN 2005

L4 STR L1

FILE 'REGISTRY' ENTERED AT 15:29:26 ON 14 JAN 2005

L5 0 S L4 SAM

L6 4 S L4 FUL

FILE 'LREGISTRY' ENTERED AT 15:31:06 ON 14 JAN 2005

L7 STR

FILE 'REGISTRY' ENTERED AT 15:37:57 ON 14 JAN 2005

L8 46 S L7 SAM

L9 4720 S L7 FUL

FILE 'REGISTRY' ENTERED AT 15:39:43 ON 14 JAN 2005

L10 STR L7

FILE 'REGISTRY' ENTERED AT 15:47:14 ON 14 JAN 2005

SAV L6 CHO739/A

SAV L9 CHO739A/A

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L12 0 S L10 SSS FUL SUB=L9

L13 0 S L10 SAM

L14 0 S L10 SSS FUL

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L15 STR L10

FILE 'REGISTRY' ENTERED AT 16:50:06 ON 14 JAN 2005

FILE 'LREGISTRY' ENTERED AT 16:51:00 ON 14 JAN 2005

L16 STR L15

FILE 'REGISTRY' ENTERED AT 16:52:50 ON 14 JAN 2005

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L18 0 S L16 SSS FUL SUB=L9

L19 0 S L15 SAM

L20 0 S L15 FUL

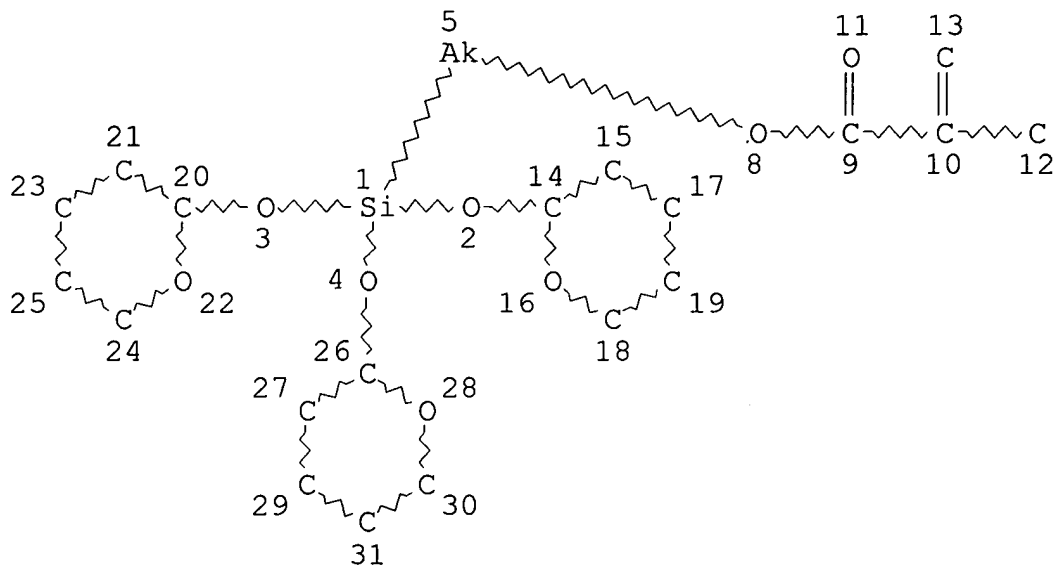
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L21 2 S L6

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=> d que stat 13

L1 STR



NODE ATTRIBUTES:

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DEFAULT ECLEVEL IS LIMITED

ECOUNT IS M1-X5 C AT 5

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 29

STEREO ATTRIBUTES: NONE

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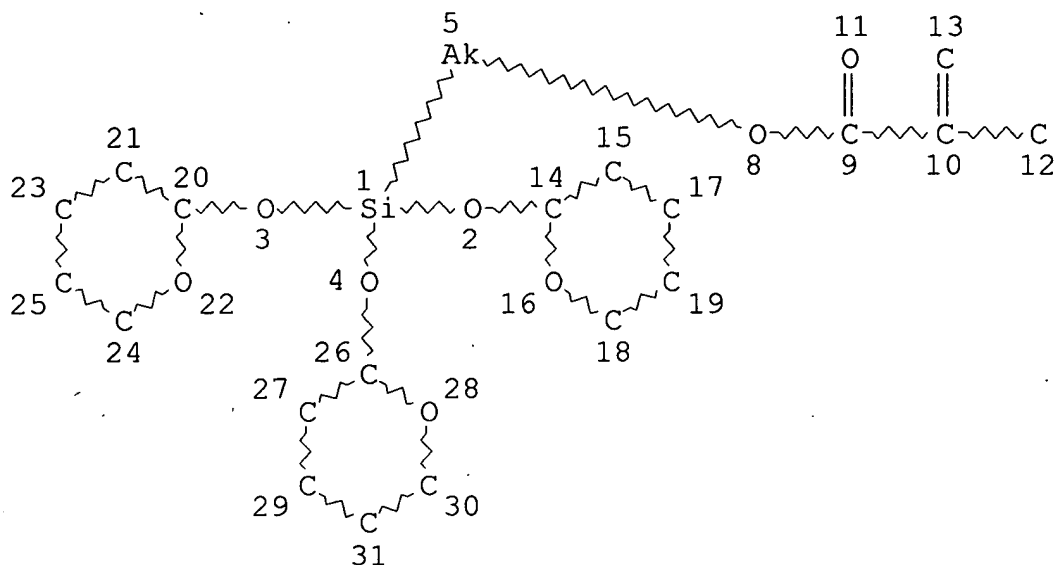
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4 ANSWERS

SEARCH TIME: 00.00.01

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L4 STR



NODE ATTRIBUTES:

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ECOUNT IS M1-X10 C AT 5

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 29

STEREO ATTRIBUTES: NONE

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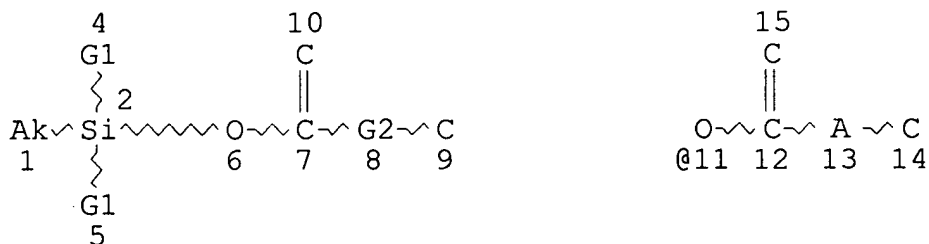
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4 ANSWERS

SEARCH TIME: 00.00.01

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L7 STR



4720 ANSWERS

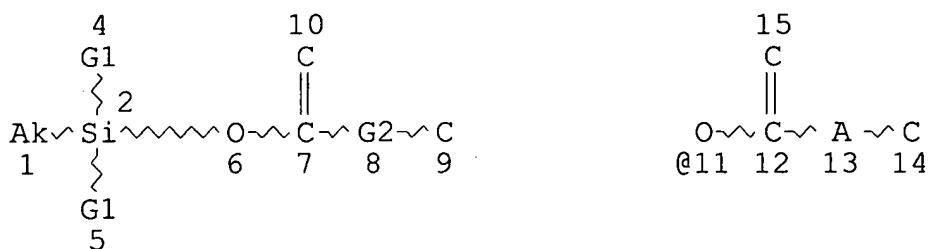
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SEARCH TIME: 00.00.02

0 ANSWERS

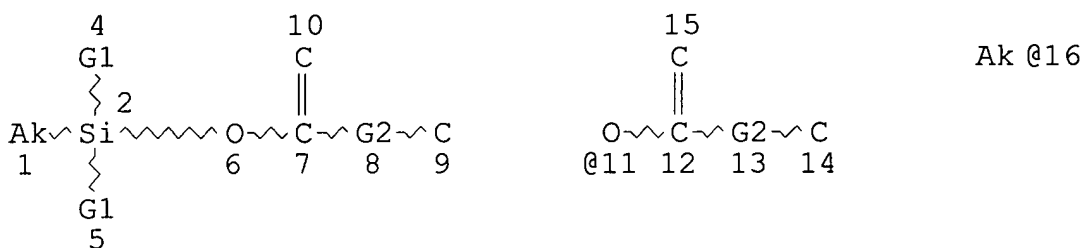
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L7 STR



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DEFAULT ECLEVEL IS LIMITED
ECOUNT IS UNLIMITED AT 13

GRAPH ATTRIBUTES:
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NUMBER OF NODES IS 14

STEREO ATTRIBUTES: NONE
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L16 STR

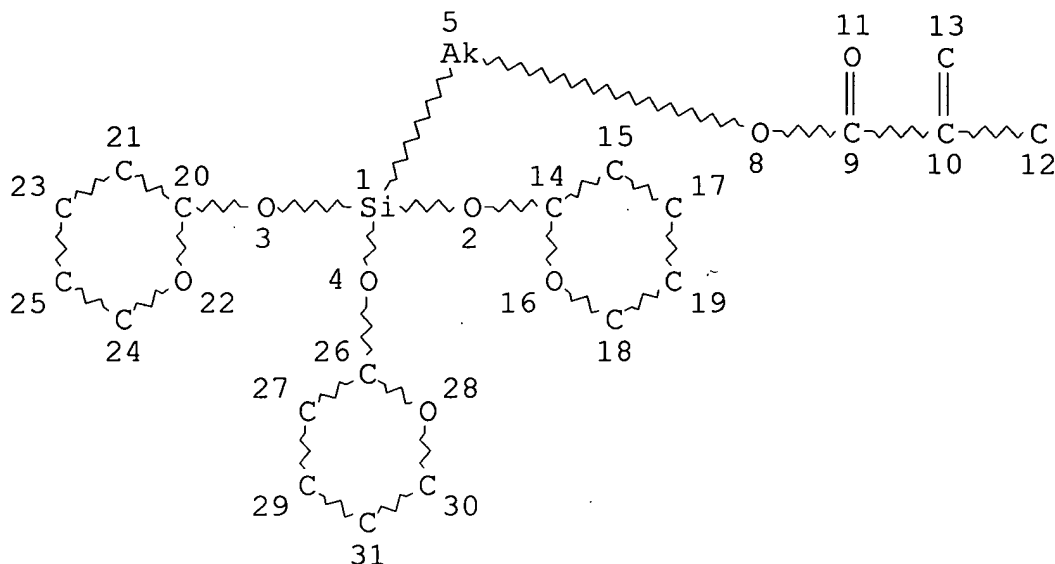


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GGCAT IS UNS AT 1
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DEFAULT ECLEVEL IS LIMITED

0 ANSWERS

Ak @16

0 ANSWERS



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

ECOUNT IS M1-X10 C AT 5

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 29

STEREO ATTRIBUTES: NONE

L6 4 SEA FILE=REGISTRY SSS FUL L4

L21 2 SEA FILE=HCA ABB=ON PLU=ON L6

=> d l21 1-2 cbib abs hitstr hitind

L21 ANSWER 1 OF 2 HCA COPYRIGHT 2005 ACS on STN

139:118790 Reversibly protected silanes for incorporation into curable coatings, silane preparation, and aqueous polymer composition.

Bowen, Daniel Edward, III; Castner, Eric Sean (The Goodyear Tire & Rubber Company, USA). PCT Int. Appl. WO 2003059918 A1 20030724, 236 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2.

APPLICATION: WO 2002-US35357 20021104. PRIORITY: US 2002-PV346426 20020107.

AB Hydroxy-silane functional groups are reversibly protected by acid-cleavable protecting groups. The development of reversible protecting groups greatly enhances the current utility of silanes while introducing further novel applications. For instance, reversibly protected silanes are of particular value in applications where room temperature cure and/or adhesion is of value, such as coatings,

high resolution imaging, caulks, adhesives, sealants, gaskets, and silicones. Reversibly protected silanes can also be beneficially used in reticulating agents, sizing agents, tires, and release coatings. The reversibly protected silane can be incorporated into a coating resin by polymerizing a monomer containing the reversibly protected

silane into the resin or by post-addition into the coating formulation.

The reversibly protected silane remains protected under basic conditions, such as in a coating formulation that contains a volatile base, for instance NH₄OH. However, deprotection occurs under mildly acidic conditions. As a coating formulation containing a volatile base dries the volatile base evaps. and deprotection occurs, which allows for controlled room temperature crosslinking to occur

with hydroxy-functionalized polymers. A silyl-acetal compound consists of a silane having 3 or 4 acetal moieties, such as 3-methacryloxypropylsilane triacetal with tetrahydropyran-2-ol (monomer preparation given).

IT **565198-42-7P**

RL: IMF (Industrial manufacture); PREP (Preparation)
(latex coating binder2; reversibly protected silanes for incorporation into curable coatings)

RN 565198-42-7 HCA

CN 2-Propenoic acid, 2-methyl-, polymer with butyl 2-propenoate, ethenylbenzene and 3-[tris[(tetrahydro-2H-pyran-2-yl)oxy]silyl]propyl 2-methyl-2-propenoate, ammonium salt (9CI) (CA INDEX NAME)

CM 1

CRN 565198-41-6

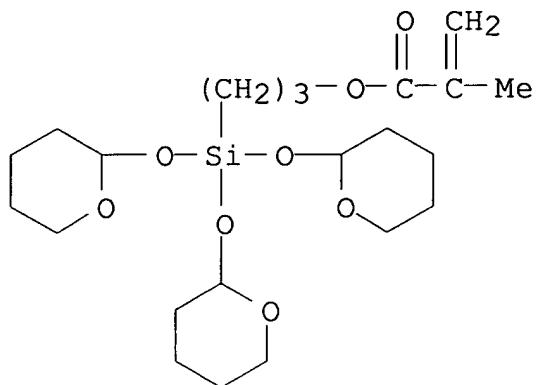
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CCI PMS

CM 2

CRN 544715-97-1

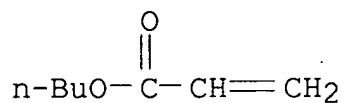
CMF C22 H38 O8 Si



CM 3

CRN 141-32-2

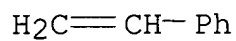
CMF C7 H12 O2



CM 4

CRN 100-42-5

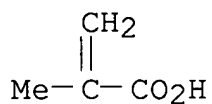
CMF C8 H8



CM 5

CRN 79-41-4

CMF C4 H6 O2



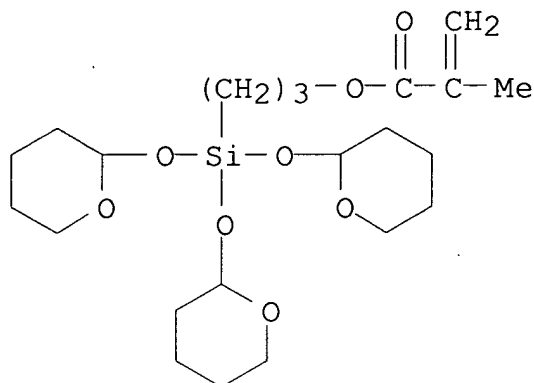
IT 544715-97-1P

RL: IMF (Industrial manufacture); PREP (Preparation)

(reversibly protected silanes for incorporation into curable coatings)

RN 544715-97-1 HCA

CN 2-Propenoic acid, 2-methyl-, 3-[tris[(tetrahydro-2H-pyran-2-yl)oxy]silyl]propyl ester (9CI) (CA INDEX NAME)



IC ICM C07F007-04

ICS C07F007-18; C08F006-00; C08K005-00

CC 42-3 (Coatings, Inks, and Related Products)

Section cross-reference(s): 29

IT **565198-42-7P**

RL: IMF (Industrial manufacture); PREP (Preparation)
(latex coating binder2; reversibly protected silanes for incorporation into curable coatings)

IT 544715-95-9P 544715-96-0P **544715-97-1P** 544715-98-2P

RL: IMF (Industrial manufacture); PREP (Preparation)
(reversibly protected silanes for incorporation into curable coatings)

L21 ANSWER 2 OF 2 HCA COPYRIGHT 2005 ACS on STN

139:53801 Silyl-acetal compounds, polymers, their preparation and use.
Bowen, Daniel Edward; Castner, Eric Sean (USA). U.S. Pat. Appl.
Publ. US 2003114581 A1 20030619, 48 pp. (English). CODEN: USXXCO.
APPLICATION: US 2002-222739 20020816. PRIORITY: US 2001-PV312851
20010816; US 2001-PV326042 20010928.

AB Reversible protection of hydroxy-silane functional groups is achieved by acid cleavable protecting groups, e.g. a silane having 3 or 4 acetal moieties. The development of reversible protecting groups greatly enhances the current utility of silanes. For instance, reversibly protected silanes are of particular value in applications where room temperature cure and/or adhesion is of value, such

as coatings, high resolution imaging, caulks, adhesives, sealants, gaskets, and silicones. Reversibly protected silanes can also be

beneficially used in reticulating agents, and in sizing agents, tires, and release coatings. The incorporation of reversibly protected silanes into coating resins is of particular value. The reversibly protected silane can be incorporated into the coating resin by polymerizing a monomer containing the reversibly protected silane into the resin or by post-addition into the coating formulation. The reversibly protected silane remains protected under basic conditions, such as in a coating formulation that contains a volatile base, for instance NH_4OH . Deprotection occurs under mildly acidic conditions. Thus, as a coating formulation containing a volatile base dries the volatile base evaps. and deprotection occurs. This allows for controlled room-temperature crosslinking to occur with hydroxy-functionalized polymers.

IT **544715-97-1P**

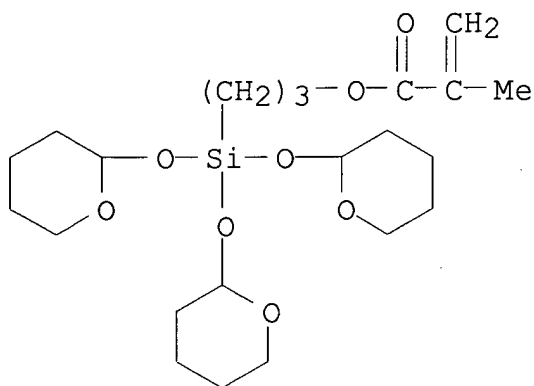
RL: IMF (Industrial manufacture); RCT (Reactant); PREP

(Preparation); RACT (Reactant or reagent)

(preparation and polymerization; preparation of silyl acetal compds. for)

RN 544715-97-1 HCA

CN 2-Propenoic acid, 2-methyl-, 3-[tris[(tetrahydro-2H-pyran-2-yl)oxy]silyl]propyl ester (9CI) (CA INDEX NAME)



IT **544715-99-3P**

RL: IMF (Industrial manufacture); PREP (Preparation)

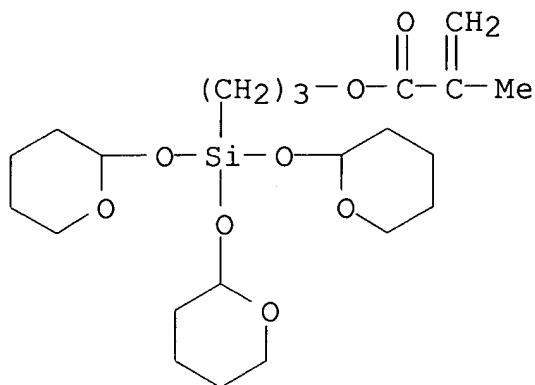
(preparation and swelling property of film latex)

RN 544715-99-3 HCA

CN 2-Propenoic acid, 2-methyl-, 3-[tris[(tetrahydro-2H-pyran-2-yl)oxy]silyl]propyl ester, polymer with butyl 2-propenoate (9CI) (CA INDEX NAME)

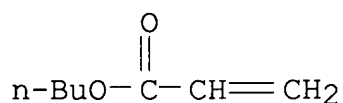
CM 1

CRN 544715-97-1
CMF C22 H38 O8 Si



CM 2

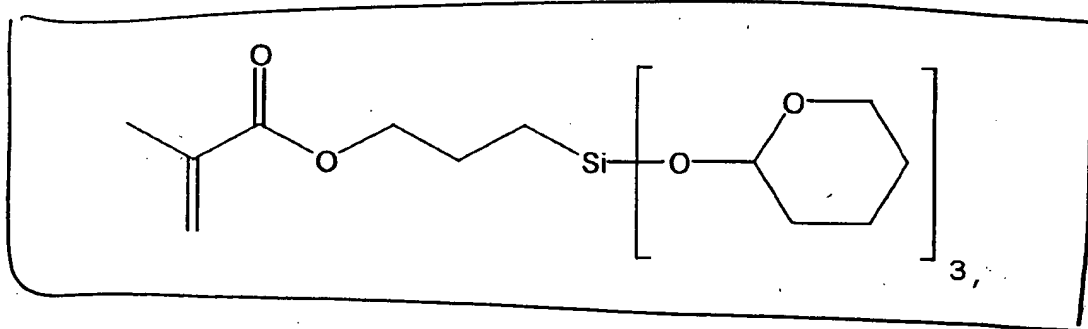
CRN 141-32-2
CMF C7 H12 O2



IC ICM C08L031-00
NCL 524556000; 525342000; 524261000
CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 38
IT **544715-97-1P** 544715-98-2P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP
(Preparation); RACT (Reactant or reagent)
(preparation and polymerization; preparation of silyl acetal
compds. for)
IT 56467-21-1P **544715-99-3P**
RL: IMF (Industrial manufacture); PREP (Preparation)
(preparation and swelling property of film latex)

=>

containing from 1 to about 18 carbon atoms; wherein R^1 , R^2 , R^3 , and R^4 can be bonded together in any combination in cases R^1 , R^2 , R^3 , and R^4 are not hydrogen atoms; wherein said alkyl groups, aryl groups, alkaryl groups, and alkoxy groups can contain halide atoms and heteroatoms selected from the group consisting of oxygen, sulfur, nitrogen, phosphorus, and silicon; wherein the amount of volatile base present is sufficient for the aqueous polymer composition to have a pH greater than 7; (3) water; (4) a resin having repeat units which are derived from (a) a member selected from the group consisting of vinyl monomers, vinyl aromatic monomers, conjugated diolefin monomers, and acrylic monomers, and (b) a monomer consisting of the following structure:



and (5) a wetting agent; and (6) a defoamer.

39. An aqueous polymer composition of claim 38 further comprised of a compound of claim 3.

40. An aqueous polymer composition of claim 38 further comprised of a compound of claim 9.

41. An Aqueous polymer composition of claim 38 further comprised of a pigment, filler, and extender; with the proviso that the aqueous polymer composition can be void of said wetting agent, defoamer, pigment, filler, and

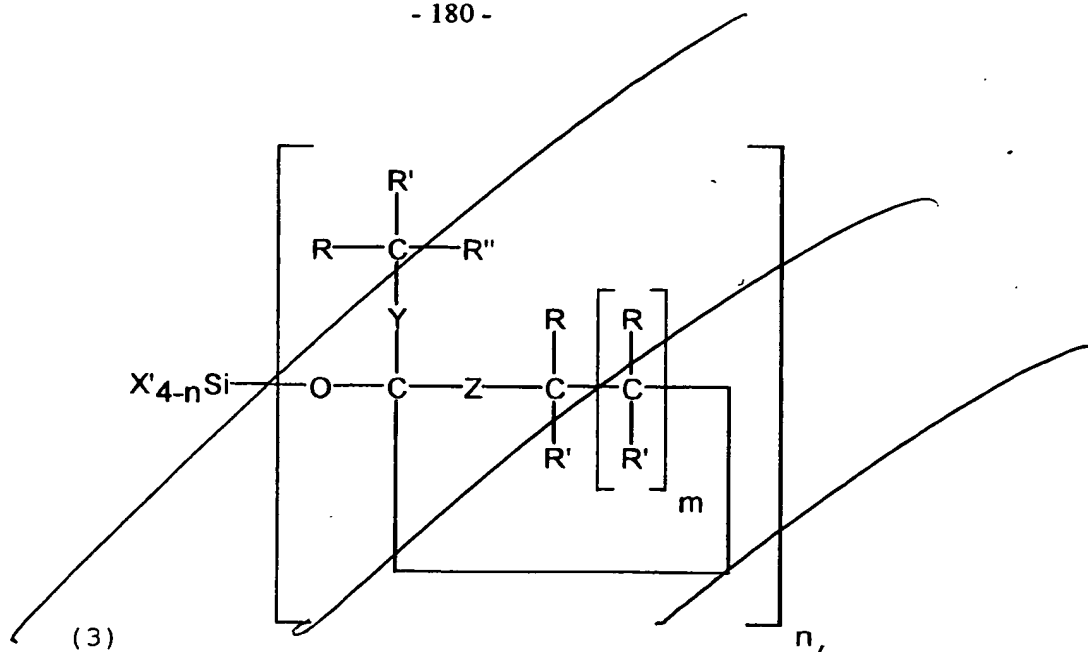
- 181 -

consisting of hydrogen atoms, alkyl groups containing from 1 to about 12 carbon atoms, aryl groups containing from about 6 to about 18 carbon atoms, alkaryl groups containing from 7 to about 18 carbon atoms, alkoxy groups containing from 1 to about 18 carbon atoms, hydroxy groups, and halide atoms; wherein R* is selected from the group consisting of hydrogen atoms, alkyl groups containing from 1 to about 12 carbon atoms, aryl groups containing from about 6 to about 18 carbon atoms, and alkaryl groups containing from 7 to about 18 carbon atoms; wherein R, R', R'', and R* can be bonded together in any combination in cases where R, R', R'', and R* are not hydrogen atoms, halide atoms, or hydroxy groups; wherein Y represents a moiety selected from the group consisting of C(R)R', oxygen, sulfur, nitrogen, and phosphorus; wherein Z represents a moiety selected from the group consisting of C(R)R', oxygen, sulfur, nitrogen, and phosphorus; with the proviso that Y and Z can not both represent the moiety C(R)R'; wherein the contiguous cyclic ring in formulas (1) and (3) can contain heteroatoms selected from the group consisting of oxygen, sulfur, nitrogen, phosphorus, and silicon in cases where m represents an integer greater than 1; wherein the contiguous cyclic ring in formulas (1) and (3) can be saturated or unsaturated in cases where m represents an integer greater than 1; wherein said alkyl groups, aryl groups, alkaryl groups, and alkoxy groups can contain halide atoms and heteroatoms selected from the group consisting of oxygen, sulfur, nitrogen, phosphorus, and silicon; (5) a wetting agent; and (6) a defoamer.

30

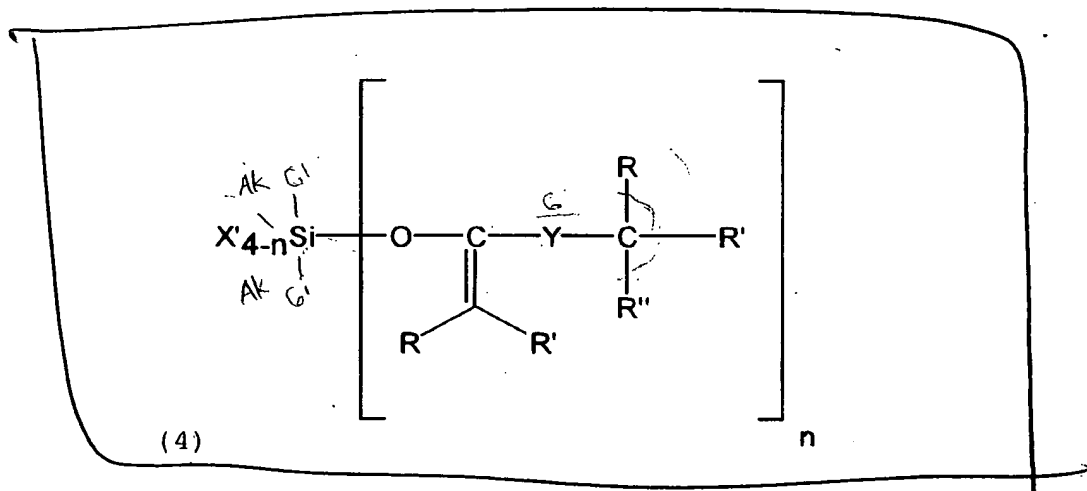
31. An aqueous polymer composition of claim 30 further comprised of a compound of claim 3.

- 180 -



and

5



wherein n represents an integer from 1 to 3; wherein m ^{? no m} represents an integer from 1 to about 20; with the proviso
 10 that m can represent the integer 0 for structures of
 formula (3) wherein Z represents the group C(R)R'; wherein
 X' groups can be the same or different; wherein X' ^{str 3}
 represents an unsaturated moiety containing at least one
 non-aromatic double bond; wherein R, R', and R'' can be the
 15 same or different and are selected from the group